CLAIMS

1. (Currently Amended) A ~~C~~control loop for the conversion of an input signal ~~(IN)~~, by multiplication by an integrator value ~~(IW)~~, to an output signal ~~(OUT)~~ that exhibits on average a constant reference value ~~(REF)~~, comprising: ~~having~~

a first multiplication element ~~(4)~~ for multiplication of the input signal ~~(IN)~~ by the integrator value ~~(IW)~~;

a difference element ~~(2)~~ for formation of a difference between the output signal ~~(OUT)~~ and the reference value ~~(REF)~~; and

an integrator element ~~(3)~~ for the formation of the integrator value ~~(IW)~~ from an integrator input signal,

where ~~characterized in that~~ a second multiplication element ~~(5)~~ is provided between the difference element ~~(2)~~ and the integrator element ~~(3)~~ for the formation of the integrator input signal from the difference weighted with a weighting factor ~~(GF)~~ derived from the integrator value ~~(IW)~~.

2. (Currently Amended) The ~~C~~control loop of ~~according to c~~Claim 1, where ~~characterized in that~~ a division element ~~(6)~~ is provided for the calculation of the weighting factor ~~(GF)~~ by division of the integrator value ~~(IW)~~ by the reference value ~~(REF)~~.

3. (Currently Amended) The ~~C~~control loop ~~according to~~ of ~~C~~claim 2, where ~~characterized in that~~ a multiplication unit ~~(7)~~ is connected between the integrator element ~~(3)~~ and the second multiplication element ~~(5)~~ for the multiplication of the integrating circuit input signal by a constant factor ~~(K)~~.

4. (Currently Amended) The ~~C~~control loop for the conversion of an input signal ~~(IN)~~, by multiplication by an integrator value ~~(IW)~~, to an output signal ~~(OUT)~~ that exhibits on average a constant reference value ~~(REF)~~, comprising: ~~having~~

a multiplication element ~~(4)~~ for the multiplication of the input signal ~~(IN)~~ by the integrator value ~~(IW)~~;

a difference element ~~(2)~~ for the formation of a difference between the output signal ~~(OUT)~~ and the reference value ~~(REF)~~; and

an integrator element ~~(3)~~ for the formation of the integrator value ~~(IW)~~ from an integrator input signal,

where ~~characterized in that~~ a multiplication unit ~~(9)~~ is provided for the scaling of the input signal ~~(IN)~~ with a value determined by a counter ~~(8)~~, which is connected to an output ~~(UA)~~ of the integrator element ~~(3)~~ and counts the number of passages of the integrator value ~~(IW)~~ beyond a lower and an upper threshold, the multiplication unit and the multiplication element being connected in series.

5. (Currently Amended) The ~~C~~control loop of ~~according to C~~claim 4, where ~~characterized in that~~ a further multiplication unit ~~(10)~~ is connected between the integrator element ~~(3)~~ and the difference element ~~(2)~~ for the multiplication of the integrating circuit input signal by a constant factor ~~(K)~~.

6. (Currently Amended) The ~~C~~control loop of ~~according to c~~Claim 5, where ~~characterized in that~~ the multiplication unit ~~(7; 10)~~ is made as a shift register.

7. (Currently Amended) The ~~C~~control loop of ~~according to c~~Claim 5, where ~~characterized in that~~ the constant factor ~~(K)~~ exhibits a value in the buildup phase of the control loop that is different from the value in the steady state.